



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Western Regional Office • 436 Dwight Street, Springfield MA 01103 • 413-784-1100

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September 16, 2014

Mr. Michael Mosher
Pexco, LLC
764 South Athol Road
P.O. Box 659
Athol, MA 01331

RE: Athol
Transmittal No.: X260718
Application No.: WE-14-014
Class: *SM-25*
FMF No.: 131686
AIR QUALITY PLAN APPROVAL

Dear Mr. Mosher:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Waste Prevention, has reviewed your non-major Comprehensive Plan Application ("Application") listed above. This Application concerns the proposed construction and operation of two extrusion machines for plastic part manufacturing and associated tumbling drums to coat the parts at your miscellaneous plastic products facility located at 764 South Athol Road in Athol, Massachusetts ("Facility"). The Application bears the seal and signature of Thomas Couture, Massachusetts Registered Professional Engineer Number 27553.

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control" regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-N, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP's review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator ("Permittee") must comply in order for the Facility to be operated in compliance with this Plan Approval.

1. DESCRIPTION OF FACILITY AND APPLICATION

Pexco, LLC (Pexco, formally Filtrona Extrusion, Bunzl Extrusion) of Athol, MA produces a variety of specialty plastic products through the extrusion process. Examples include medical extrusions for fluid IV sets, dialysis, and surgical drainage units; industrial tubing for automotive, packaging, beverage, plumbing, pneumatic, and vacuum systems; and plastic inserts for chain-link fences. The facility is proposing to add two new extrusion lines that will produce nicotine/flavoring components of a cigarette alternative.

In addition to establishing the best available control technology (BACT) for the new extrusion lines, this Plan Approval established new facility-wide emission limits for volatile organic compounds (VOCs) and hazardous air pollutants (HAPs). **Therefore, facility-wide emissions limits from all previous Plan Approvals are superseded.**

The facility currently has Plan Approval #1-P-06-035 (dated September 25, 2007) to operate 25 extrusion lines. VOCs emissions are primarily from the eleven (11) medical extrusion lines that require the use of isopropyl alcohol to lubricate the plastic as it is cut. Pexco (then Filtrona) evaluated the use of add-on control equipment (thermal oxidation and wet scrubbing) for the control of VOC emissions from these processes. For all scenarios evaluated, the cost of control was determined to be excessive in relation to the quantity of VOC that was controlled. The MassDEP agreed with this overall assessment of BACT.

This application (#WE-14-014) concerns operation of an existing 27 millimeter (mm) extrusion machine as well as the installation and operation of an additional 18 mm extrusion machine. The 27 mm extrusion machine was installed in December 2013. Before installation, Pexco submitted calculations (via email, 11/19/2013) to the MassDEP to show that, based on its potential to emit 0.2227 tons per year of VOCs, the extruder was exempt from Plan Approval.

For this process, a polymer base is mixed with nicotine and then extruded into cylinder-shaped plastic parts. Pexco conducted a trial to determine an emission factor for the extrusion process. The facility measured the change in weight from the raw polymer to the extruded plastic parts over fifteen (15) minutes operation of the 27 mm extrusion machine. They assumed that the total losses were attributed to the emission of VOCs. The emission factor was determined to be 0.0013 kilograms of VOC per kilogram of extruded material. Due to quality control of the plastic parts, the extrusion rate is limited to 3 kg/hr for the 18 mm extruder and 18 kg/hr for the 27 mm extruder.

Tumbler drums will be used to apply, in batches, two separate coatings to the extruded parts: an ethanol-based flavoring (coating process #1) and a final coating that will contain a smaller fraction of the same flavoring (coating process #2).

The worst-case application rate of ethanol-based flavoring during coating process #1 will be no more than 6.66 weight-percent of the plastic parts to be coated. The worst-case application rate for coating process #2 is approximately 0.025 weight-percent of the plastic parts. The worst-case

VOC concentration has been determined by Pexco to be 89.0 weight-percent of VOC. It is assumed that all of the ethanol is emitted to the atmosphere during the process. The balance of the two coatings contains no additional VOCs. Hazardous Air Pollutants (HAPs) are not used in the process.

Evacuation hoods will be installed above the extruder and the flavoring drums. Both will lead to roof stacks that are greater than ten (10) feet above the building roofline.

No VOCs or HAPs are used to clean the extrusion machine or associated equipment.

Potential emission of VOC from the process of extrusion and ethanol-based coating use has been estimated to be 12.1 tons per year. Pexco is proposing an additional 13.0 tons per year of VOC be added to the current facility-wide total VOC. Although Pexco does not use hazardous air pollutants in the process being considered for Plan Approval, they have requested to adjust the facility-wide cap down to 0.25 tons per year.

BACT Determination

In accordance with 310 CMR 7.02(8)(a)2.b., in lieu of a top-down Best Available Control Technology (BACT) analysis, Pexco will use a combination of best management practices, pollution prevention, and a limitation on raw material usage. Daily records of material usage and coating characteristics will be kept. Provisions for good VOC storage and handling practices have been included in Table 6, Special Terms and Conditions.

Applicable Regulatory Requirements

In addition to being subject to the BACT requirements of 310 CMR 7.02(8)(a)2, the surface coating operation is subject to the visible emission requirements of 310 CMR 7.06, the dust, odor, construction and demolition requirements of 310 CMR 7.09 and the noise reduction requirements of 310 CMR 7.10.

Pexco, LLC has stated in their application that the facility is not subject to the New Source Performance Standards (NSPSs) or National Emission Standards for Hazardous Air Pollutants (NESHAPs).

2. **EMISSION UNIT IDENTIFICATION**

Each Emission Unit (“EU”) identified in Table 1 is subject to and regulated by this Plan Approval:

Table 1			
EU	Description	Design Capacity	Pollution Control Device (PCD)
1	Leistritz ZSE-27/40D Twin-Screw Extruder - 27 mm (as installed) and associated tumbler drum(s)	18 kg/hr of product	N/A
2	Leistritz MIC-27/GL-40D Twin-Screw Extruder - 18 mm (or equivalent) and associated tumbler drum(s)	3 kg/hr of product	N/A

Table 1 Key:

EU = Emission Unit Number
kg/hr = kilogram per hour
N/A = Not applicable

PCD = Pollution Control Device
mm = millimeter

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2:

Table 2			
EU	Operational / Production Limit	Air Contaminant	Emission Limit
1, 2	1. 203 tons/year extruded ¹ .	VOC	13.0 TPY ² 2.0 TPM
	2. ≤ 0.0668 pounds of flavor coating per pound extruded.		
	3. ≤ 89% VOC content of flavor coating.		
	-	HAP	0.0 TPY/TPM
Facility- wide	-	VOC	27.1 TPY 4.0 TPM
		HAP	0.25 TPY 0.25 TPM

Table 2 Key:

EU = Emission Unit Number
TPY = tons per consecutive 12-month period
TPM = tons per month
≤ = Less than or equal to

VOC = Volatile Organic Compounds
HAP (total) = total Hazardous Air Pollutants
% = Percent

Table 2 Notes:

1 – Based on a maximum combined throughput of 21 kilograms per hour.

2 – Emissions from the extrusion process are based on an emission factor of 0.0013 pounds of VOC emitted per pound extruded as determined through measurement by Pexco, LLC.

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5:

Table 3	
EU	Monitoring and Testing Requirements
1, 2	<p>1. In accordance with 310 CMR 7.02(3)(d), the Permittee shall monitor, on a daily basis, to demonstrate compliance for each calendar month and 12 consecutive months, the emission limits in Table 2. Such monitoring shall include, but is not limited to:</p> <ul style="list-style-type: none"> a. Date; b. Pounds of plastic parts extruded; c. Weight percent VOC of ethanol-based flavoring; d. Pounds of ethanol-based flavoring applied per pound of plastic part extruded; e. For each coating, as applied: <ul style="list-style-type: none"> i. Gallons of coating used; ii. Density (pounds per gallon); iii. Weight percent of VOC; and iv. Weight percent of HAP (total).
Facility-wide	2. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	3. If and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and Regulation 310 CMR 7.13.
	4. At least 30 days prior to emission testing, the Permittee shall submit to MassDEP for approval a stack emission pretest protocol.
	5. Within 45 days after emission testing, the Permittee shall submit to MassDEP a final stack emission test results report.

Table 3 Key:

EU = Emission Unit Number
VOC = Volatile Organic Compounds

HAP (total) = total Hazardous Air Pollutants
CMR = Code of Massachusetts Regulations
USEPA = United States Environmental Protection Agency

Table 4

EU	Record Keeping Requirements
	<p>1. In accordance with 310 CMR 7.02(3)(e), the Permittee shall record, on a daily basis, to demonstrate compliance for each calendar month and 12 consecutive months, the emission limits in Table 2. Such recordkeeping shall include, but is not limited to the:</p> <ul style="list-style-type: none"> a. Date; b. Pounds of plastic parts extruded; c. Weight percent VOC of ethanol-based flavoring; d. Pounds of ethanol-based flavoring applied per pound of plastic parts extruded; e. For each coating, as applied: <ul style="list-style-type: none"> i. Gallons of coating used; ii. Density (pounds per gallon); iii. Weight percent of VOC; and iv. Weight percent of HAP (total).
Facility-wide	<p>2. The Permittee shall maintain adequate records on-site to demonstrate compliance status with all operational, production, and emission limits contained in Table 2 above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve-month period (current month plus prior eleven months). These records shall be compiled no later than the 15th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/eea/agencies/massdep/air/approvals/limited-emissions-record-keeping-and-reporting.html#WorkbookforReportingOn-SiteRecordKeeping.</p>
	<p>3. The Permittee shall maintain records of monitoring and testing as required by Table 3.</p>
	<p>4. The Permittee shall maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the EU(s) approved herein on-site.</p>
	<p>5. The Permittee shall maintain a record of routine maintenance activities performed on the approved EU(s), PCD(s) and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.</p>
	<p>6. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EU(s) and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to compliant operation.</p>

Table 4	
EU	Record Keeping Requirements
	7. The Permittee shall maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	8. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years.
	9. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

Table 4 Key:

EU = Emission Unit Number

PCD = Pollution Control Device

CMR = Code of Massachusetts Regulations

SOMP = Standard Operating and Maintenance Procedure

HAP (total) = total Hazardous Air Pollutants

VOC = Volatile Organic Compounds

USEPA = United States Environmental Protection Agency

Table 5	
EU	Reporting Requirements
Facility-wide	1. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a "Responsible Official" as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	2. The Permittee shall notify the Western Regional Office of MassDEP, BWP Section Chief by telephone: (413) 755-2115, email: marc.simpson@state.ma.us, or fax : (413) 784-1149, as soon as possible, but no later than three (3) business day after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted Section Chief at MassDEP within ten (10) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
	3. The Permittee shall report annually to MassDEP, in accordance with 310 CMR 7.12, all information as required by the Source Registration/Emission Statement Form. The Permittee shall note therein any minor changes (under 310 CMR 7.02(2)(e), 7.03, 7.26, etc.), which did not require Plan Approval.

Table 5 Key:

EU = Emission Unit Number

CMR = Code of Massachusetts Regulations

4. **SPECIAL TERMS AND CONDITIONS**

A. The Permittee is subject to, and shall comply with, the Special Terms and Conditions as contained in Table 6 below:

Table 6	
EU	Special Terms and Conditions
1, 2	<p>1. The Permittee shall institute the following BMPs:</p> <ul style="list-style-type: none"> a. Store all VOC-containing materials in closed containers; b. Ensure that mixing and storage containers used for VOC-containing materials are kept closed at all times except when depositing or removing these materials; c. Minimize spills of VOC-containing materials; d. Convey VOC-containing materials from one location to another in closed containers or pipes; e. Minimize VOC emissions from cleaning of application, storage, mixing, and conveying equipment by ensuring that equipment cleaning is performed without atomizing the cleanup solvent; f. Store and dispose of all absorbent materials, such as cloth or paper that are contaminated with VOC-containing materials in non-absorbent containers that shall be kept closed except when placing materials in or removing materials from the container.
	<p>2. The Permittee shall install an evacuation hood over each extrusion machine and tumbling drums. The hoods shall be routed to a stack conforming to the following criteria:</p> <ul style="list-style-type: none"> a. The stack shall discharge vertically upwards; b. The stack shall not have rain protection of a type that restricts the vertical exhaust flow; c. The stack gas exit velocity shall be greater than 40 feet per second; and d. The minimum stack exit height shall be 35 feet above the ground or ten feet above roof level.
	<p>3. In accordance with 310 CMR 7.01(2)(c), within 30 days of installation of the evacuation hood(s) and associated stack(s), the Permittee shall submit a certification to MassDEP that the stack meets requirements 2a. through 2d. as specified above.</p>

Table 6 Key:

EU = Emission Unit Number
BMP = Best Management Practices

VOC = Volatile Organic Compounds
CMR = Code of Massachusetts Regulations

- B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including, but not limited to, rain protection devices known as “shanty caps” and “egg beaters.”
- C. The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7, for the Emission Units that are regulated by this Plan Approval:

Table 7				
EU	Stack Height Above Ground (feet)	Stack Inside Exit Dimensions (feet)	Stack Gas Exit Velocity Range (feet per second)	Stack Gas Exit Temperature Range (°F)
1, 2	To be provided by the Permittee upon installation of the stack	To be provided by the Permittee upon installation of the stack	To be provided by the Permittee upon installation of the stack	To be provided by the Permittee upon installation of the stack

Table 7 Key:

EU = Emission Unit Number

°F = Degree Fahrenheit

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.
- C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.

- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.
- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.
- F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.
- G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.
- H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.
- I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.
- J. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain "Fail-Safe Provisions," which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Should you have any questions concerning this Plan Approval, please contact Amy Stratford by telephone at (413) 755-2144, or in writing at the letterhead address.

This final document copy is being provided to you electronically by the
Department of Environmental Protection. A signed copy of this document
is on file at the DEP office listed on the letterhead.

Marc Simpson
Section Chief
Bureau of Waste Prevention

Enclosure:

ecc: MassDEP/Boston - Yi Tian
Jeff Bibeau, REM, Tighe & Bond, Inc.